Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of:

Mitigation of Orbital Debris In The New Space Age	**)** **)** **)**	**IB Docket No. 18-313**

To: The Commission

REPLY COMMENTS OF RADIO AMATEUR SATELLITE CORPORATION

The Radio Amateur Satellite Corporation (AMSAT®), respectfully submits reply comments in response to the *Notice of Proposed Rulemaking*, FCC 18-159, 84 Fed. Reg. 4742, released February 19, 2019 (the Notice). These reply comments are timely filed.

I. "One Size Fits All" Rules

Several commenters suggest the Commission should accept a flexible approach and avoid "one size fits all rules." We strongly agree. Amateur satellite communications missions are unique in the current small satellite market. Orbits under 650 km in altitude that are adequate for a majority of experimental and scientific missions are inadequate for the types of amateur communications missions that amateur radio operators desire. We ask that the Commission consider the unique requirements of communications missions in the amateur satellite service when implementing any new regulations, recognizing that the opportunities for launches to higher orbits are limited in number for amateur organizations, and that the number of satellites launched to these orbits would be few.

II. Propulsion

We mostly agree with the comments of the University Small-Satellite Researchers on propulsion. However, we believe that the Commission should not adopt a requirement that amateur satellites carry

propulsion, regardless of the orbital altitude. Most propulsion systems for small satellites are currently not priced within the budgetary constraints of amateur satellite operators. Additionally, launch providers are often wary of allowing amateur operators to carry potentially dangerous propulsion systems aboard their launch vehicles. A propulsion requirement could reduce the number of launch opportunities available for amateur satellites.

We also agree with the comments of the University Small-Satellite Researchers and others regarding the encryption of telemetry and command links. Encryption requirements should be limited to satellites carrying propulsion and, further, should only apply to command uplinks. Telemetry transmissions in the amateur satellite service should always be unencrypted.

III. Twenty-Five Year Rule

A number of commenters suggest reducing the period after mission completion when a satellite must be deorbited or moved to a parking orbit. We disagree with this suggestion as applied to amateur satellites. A reduction from 25 years to 15 years, 10 years, or even lower would reduce the ability for AMSAT and other amateur satellite builders to deploy their satellites in a useful orbit. We urge the Commission to maintain the current rule requiring deorbiting or move to a parking orbit within 25 years of the mission completion. We further urge the Commission to consider the long mission duration of amateur communications satellites when determining whether a proposed satellite would comply with this rule.

IV. Backup Tracking Methods

Many commenters suggest the inclusion of a backup tracking method should a satellite fail on orbit. We agree that this is desirable, however, we caution the Commission that these technologies have not yet been fully developed. Amateur satellite groups have limited budgets, so any required backup tracking system should be low cost. Additionally, any backup system included on a CubeSat or other

small satellite will reduce the available space and power for the primary systems. Small, passive, self-powered systems, such as RFID tags may be suitable for inclusion in amateur satellites in the future. As these technologies are still in their infancy, we urge the Commission to not implement a requirement to include these systems at this time.

V. Indemnification Requirements

Commenters are essentially unanimous in opposing the addition of an indemnification requirement. We especially agree in the context of the amateur satellite service, where everyone involved in the operation of the satellite is doing so without any pecuinary interest, per the Commission's rules. As discussed in our comments, this would be an impossible burden for amateur operators to meet as it is very unlikely that any amateur operator would be willing to take on such a large potential liability.

VI. Conclusion

As noted in our original comments, we understand the problem of orbital debris and are committed to being good stewards of orbital resources. However, we request that the Commission carefully consider the impact of any proposed regulations on amateur satellite organizations and others building and operating space stations in the amateur satellite service.

RESPECTFULLY SUBMITTED,

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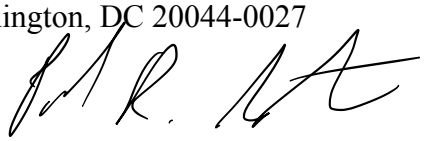
By 

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